

AMENDMENTS TO THE CLAIMS

1. (currently amended) A group III nitride compound semiconductor device, comprising:
a substrate ~~having~~ including an upper surface;
an undercoat layer uniformly formed ~~directly~~ on an entirety of said upper surface of said substrate, in which an upper surface of said undercoat layer is covered with convex portions, each of said convex portions being shaped like a truncated hexagonal pyramid; and
group III nitride compound semiconductor layers formed on said undercoat layer ~~and having a device function.~~
2. (previously presented) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises GaN doped with magnesium.
3. (original) A group III nitride compound semiconductor device according to claim 2, wherein a magnesium concentration of said undercoat layer is not lower than 10^{20} /cm³.
4. (currently amended) A group III nitride compound semiconductor device, ~~comprising:~~
~~a substrate;~~
~~an undercoat layer formed on said substrate and having a surface with convex portions each shaped like a truncated hexagonal pyramid; and~~
~~group III nitride compound semiconductor layers formed on said undercoat layer and having a device function;~~ according to claim 2, wherein said undercoat layer ~~comprises GaN doped with magnesium and said undercoat layer is also~~ is doped with an n-type dopant and is of an n-type as a whole.
5. (previously presented) A group III nitride compound semiconductor device according to claim 1, wherein said substrate comprises one of sapphire, SiC, and silicon single crystal.

6. (original) A group III nitride compound semiconductor device according to claim 1, further comprising a sedimentary layer interposed between said undercoat layer and said substrate.
7. (previously amended) A group III nitride compound semiconductor device according to claim 1, wherein said group III nitride compound semiconductor layers comprise one of a light-emitting device, a photodetector, and an electronic device as a whole.
- 8-31. (Canceled)
32. (currently amended) A group III nitride compound semiconductor device, comprising:
a substrate ~~having~~ including an upper surface;
an undercoat layer uniformly formed ~~directly~~ on an entirety of said upper surface of said substrate, in which a cross-section of an upper surface of said undercoat layer is characterized by a sectionally trapezoid shape; and
group III nitride compound semiconductor layers formed on said undercoat layer ~~and having a device function.~~
33. (currently amended) A group III nitride compound semiconductor device according to claim 32, wherein ~~the~~ said sectionally trapezoid shape includes convex portions, each of said convex portions being shaped like a truncated hexagonal pyramid.
34. (new) A group III nitride compound semiconductor device according to claim 1, wherein said an undercoat layer that is uniformly formed is formed continuously and unbrokenly on said entirety of said upper surface of said substrate.
35. (new) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises a quaternary compound semiconductor represented by $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{N}$, where $0 < X < 1$, $0 < Y < 1$, and $0 < X + Y < 1$.

36. (new) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises a ternary compound semiconductor represented by $\text{Al}_x\text{Ga}_{1-x}\text{N}$, where $0 < x < 1$.

37. (new) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises one of AlN, GaN, and InN.

38. (new) A group III nitride compound semiconductor device, comprising:
a substrate including an upper surface;
an undercoat layer uniformly formed on a substantial entirety of said upper surface of said substrate, in which an upper surface of said undercoat layer is covered with convex portions, each of said convex portions being shaped like a truncated hexagonal pyramid; and
group III nitride compound semiconductor layers formed on said undercoat layer,
wherein said undercoat layer comprises GaN, in which Ga is partially replaced by one of Al, In, B, and Th and in which N is partially replaced by P, As, Sb, and Bi.

39. (new) A group III nitride compound semiconductor device, comprising:
a substrate including an upper surface;
an undercoat layer uniformly formed on a substantial entirety of said upper surface of said substrate, in which a percentage of area of said upper surface of said undercoat layer in a plane projection is occupied by slopes; and
group III nitride compound semiconductor layers formed on said undercoat layer,
wherein each of said slopes, when projected on a plane of said undercoat layer, comprise a width smaller than $2\ \mu\text{m}$.

40. (new) A group III nitride compound semiconductor device, according to claim 39, wherein said percentage of area may comprise one of 70% to 100% to form a textured surface, 30% to 70% to form a sectionally trapezoid shape in cross section, and 5% to 30% to form a pit

shape in cross section.

41. (new) A group III nitride compound semiconductor device, according to claim 40, wherein said percentage of area of 30% to 70%, which forms a sectionally trapezoid shape in cross section, comprises convex portions, each of said convex portions being shaped like a truncated hexagonal pyramid.

C1 42. (new) A group III nitride compound semiconductor device according to claim 6, wherein said sedimentary layer comprises at least one of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ where $0 \leq x \leq 1$, TiN, HfN, ZrN, and TaN.

43. (new) A group III nitride compound semiconductor device according to claim 1, further comprising a growth suppressing material layer formed on a part of said undercoat layer.

44. (new) A group III nitride compound semiconductor device according to claim 43, wherein said part of said undercoat layer comprises troughs located between said convex portions.
